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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,114	06/08/2005	Monisha Ghosh	PHUS020547	8866

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER

TRINH, SONNY

ART UNIT	PAPER NUMBER
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2618

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/07/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/538,114

Applicant(s)

GHOSH ET AL.

Examiner

Sonny TRINH

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2005.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-8 is/are rejected.
7) ☒ Claim(s) 9 and 10 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 08 June 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. **Claims 8-10** are objected to because of the following informalities: Claims 8-10 are method claims which cannot depend on the apparatus/means claims. For the purpose of examining, it is assumed that claims 8-10 depend directly on claim 7. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Cimini Jr. et al. (hereinafter "Cimini"; U.S. Patent Number 6,005,876) in view of Wu et al. (hereinafter "Wu"; U.S. Patent Number 6,985,434).

Regarding **claim 1**, with reference to figures 1A and 3 (please see columns 3-4), Cimini discloses a diversity transmitter comprising: (a) a first processing circuitry module (figure 1A, encoder 101) for transforming an input data bit stream b_i into an OFDM symbol stream and for dividing said OFDM symbol stream into a first OFDM symbol sub-stream and a second OFDM symbol sub-stream (column 2 lines 8-44); (b) a second

processing circuitry module, coupled to a first output of said first processing circuitry module, for further processing said first OFDM symbol sub-stream (figure 1A, element 102sub1); (c) a third processing circuitry module, coupled to said a second output of said first processing circuitry module, for further processing said second OFDM symbol sub-stream (figure 1A, element 102subm); (d) a first antenna, coupled to an output of said second processing circuitry module, for transmitting said further processed first OFDM symbol sub-stream (figure 1A antenna 104sub1); and (e) a second antenna, coupled to an output of said third processing circuitry module, for transmitting said further processed second OFDM symbol sub-stream (figure 1A, antenna 104subm); wherein said first and second OFDM symbol sub-streams are transmitted over non-overlapping frequencies (inherent in the OFDM). Cimini discloses the invention but does not explicitly disclose that first OFDM symbol sub-stream includes only even symbols from said OFDM symbol stream and said second OFDM symbol sub-stream includes only odd symbols from said OFDM symbol stream.

In an analogous art, Wu discloses an adaptive time diversity and spatial diversity for OFDM (abstract). With reference to figure 7, Wu further discloses that OFDM symbol sub-stream includes only even symbols from said OFDM symbol stream and said second OFDM symbol sub-stream includes only odd symbols from said OFDM symbol stream (column 8 line 39 to column 11 line 34).

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to incorporate, within the Cimini's system, the odd and

even symbol sub-streams, as taught by Wu to minimize the multi-path problems associated with the communication systems.

Regarding **claim 2**, Wu further discloses the a scrambler, an FEC encoder and an interleaving and mapping module (column 4 line 53 to column 5 line 63).

Regarding **claim 3**, Cimini further discloses that the OFDM symbol streams are divided into said first OFDM symbol sub-stream and said second OFDM symbol sub-stream (figures 1A, 3).

Regarding **claim 4**, Wu further discloses that the antennae are provided for spatial diversity (STTD, please see columns 1-2).

Regarding **claim 5**, the combination of Cimini and Wu discloses the invention but does not explicitly disclose that the diversity transmitter operates in accordance with an IEEE 802.11a standard. However, since Cimini invention relates to wireless LAN (column 3 lines 9-24) and since IEEE 802.11a is a well known standard, therefore it would have been obvious and well within the level of a person of ordinary skill in the art to modify the system of Cimini to conform to the IEEE 802.11a. The motivation for using the IEEE 802.11a is to make the system compatible with wireless receivers.

Regarding **claim 6**, this claim reflects the means as opposed to the apparatus claim of claim 1 and is therefore rejected for the same reasons.

Regarding **claim 7**, this claim reflects the method claim as opposed to the apparatus claim of claim 1 and is therefore rejected for the same reasons.

Regarding **claim 8**, figures 1A, 3 show the antennae 104sub1, 104subm and 309sub1, and 309subm spatially apart for transmit diversity and are therefore performed independent of each other.

Allowable Subject Matter

3. **Claims 9-10** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims including the objection to the claims raised by the Examiner above.

Regarding **claim 9**, the applied references fail to disclose or render obvious the claimed limitations of claim 7, specifically wherein said step of processing said first symbol stream further comprises the steps of: (a) performing a serial-to-parallel conversion on said first symbol sub-stream; (b) performing an inverse fourier transform (IFFT) on an output from said step (a); (c) performing a GI addition on an output from said step (b); (d) performing a symbol wave-shaping on an output from said step (c); and (e) modulating an output from said step (d).

Regarding **claim 10**, the applied references fail to disclose or render obvious the claimed limitations of claim 7, specifically wherein said step of processing said second symbol stream further comprises the steps of: (a) performing a serial-to-parallel conversion on said second symbol sub-stream; (b) performing an inverse fourier transform (IFFT) on an output from said step (a); (c) performing a GI addition on an

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output from said step (b); (d) performing a symbol wave-shaping on an output from said step (c); and (e) modulating an output from said step (d).

CONCLUSION

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward URBAN can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

3/1/07


SONNY TRINH
PRIMARY EXAMINER